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From theory to practice: the multiple intelligences theory experience in a Romanian secondary school

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Abstract

The paper refers to the application of the multiple intelligences theory in a Romanian secondary school based on the profile of intelligences, which resulted from the administration of the MIDAS questionnaire. The results of the questionnaire and the data generated from observations have been used in designing sets of activities for various types of intelligences (logical mathematical and linguistic). The overall activities of students were analyzed and compared to the intelligences' profiles. The current students' activities were also related to the ongoing curriculum prescriptions and recommendations. Study cases were designed for several students. The research has revealed the existence of the types and levels of intelligences, as defined in the theory and raised the question, to what extent the levels of a symbolic approach to learning can possibly be used in the curriculum design from the perspective of this theory.

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Keywords: theory of multiple intelligences, potential, curriculum, symbol;

1. Premises

The activity was designed and took place on the assumption that if multiple intelligences theory is used in the educational activity it means to improve motivation and performance of the student group. In this respect there are already prerequisites for this theory and principles specific in the current educational system to which are added: the student group is a learning community where students present intelligences types as designated by the multiple intelligences theory; even if they do not have detailed knowledge on the theory teachers use specific elements of this theory; application of the theory helps teachers to create varied individual educational experiences and models depending on the types of intelligences that students possess; the theory is an effective tool in the activity of teachers to help students to study by their own power extending and promoting cognitive techniques based on the types of intelligences; it opens levels of intrinsic motivation to students based on their natural potential by helping teachers build appropriate educational experiences; it validates the introspective and intuitive spirit of the teacher regarding the student's knowledge and potential assessment providing justification and basis for creating and accommodating personalised educational experiences; provides students, educational groups, teachers and parents with an insight on

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the potential student data; last but not least it is an effective means for counselling, educational and vocational guidance.

2. Preparations and activities

The experimental group (N=31) and the control group (N=32) were students of the secondary school "I.G. Duca" from the town of Petroşani in Hunedoara County, România. The groups were tested using the MIDAS questionnaire (the questionnaire was translated into Romanian and interpretation of results was done by MIDAS) at the end of the 5th grade (May 2005; newcomer students in September) and at the end of 6th grade (May 2006). During the school year educational activities were designed based on profiles and levels generated by MIDAS. The 8 types of intelligences and levels are presented for both groups in Table 1 and Table 2. Meanwhile, Figure 1 and Figure 2 represent the situation for the experimental group from the 5th to 6th grade from the multiple intelligences point of view.

Table 1. Multiple intelligences experimental group profile

Experimental Group 1 Types of intelligences	Very low initial/final	Low initial/final	Moderate initial/final	High initial/final	Very high initial/final
musical	-/1	11/2	17/17	3/8	-/3
kinaesthetic	6/-	7/-	11/21	6/6	1/4
logical-mathematical	1/-	4/3	18/9	8/14	-/5
visual-spatial	-/-	12/3	12/18	6/5	1/5
linguistic	-/-	7/3	20/10	3/15	1/3
intrapersonal	-/-	12/1	13/15	4/8	2/7
interpersonal	8/-	5/3	12/12	5/9	1/7
naturalistic	-/-	2/-	10/10	15/12	4/9

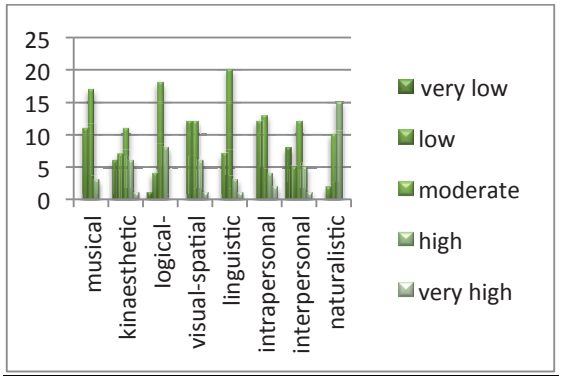

Figure 1 Experimental group profile after initial MIDAS testing (end of 5th grade)

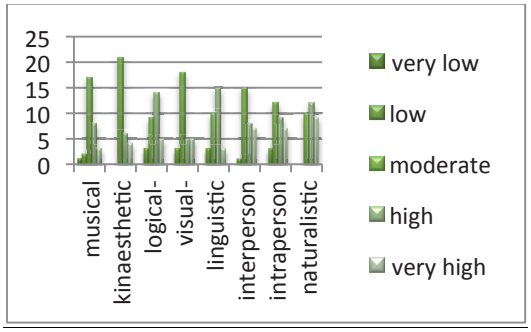

Figure 2 Experimental group profiles after final MIDAS testing (end of 6th grade)

Table 2 Multiple intelligences control group profile

Control Group 1 Type of intelligences	Very low initial/final	Low initial/final	Moderate initial/final	High initial/final	Very high initial/final
musical	9/2	17/10	6/17	-/2	-/1
kinaesthetic	4/2	13/11	14/11	1/8	-/-
logical-mathematical	-/-	7/6	15/10	10/13	-/3
visual-spatial	3/1	16/12	9/13	3/6	1/-
linguistic	-/1	13/5	15/15	4/9	1/2
intrapersonal	-/1	10/6	15/15	7/9	-/2
interpersonal	-/-	11/3	14/17	6/10	1/2
naturalistic	-/-	5/5	15/17	12/9	-/1

The students in secondary school were in terms of national curriculum structure, in the curriculum development cycle, which covers 3rd to 6th grade. The study syllabus for all subjects at the time, according to the national curriculum conveyed instructional models based on educational objectives. The study subjects were activities based on types and level of intelligences have been designed and performed during the 6th grade were: Romanian language and literature, English language (National Curriculum area: Language and communication) and Mathematics ((National Curriculum area: Mathematics and Science) Romanian National Curriculum is structured into 7 curricular areas). In designing activities for these three subjects, situations were also related to the styles of learning and these are presented in Table 3 and Figure 3 for both groups according to the MIDAS results.

Table 3 Styles of learning

Groups	Technical style	Innovative style	Equal score for both styles
Experimental Group (initial testing)	21	9	1
Control Group	26	3	3
Experimental group (final testing)	20	9	2
Control Group	26	6	-

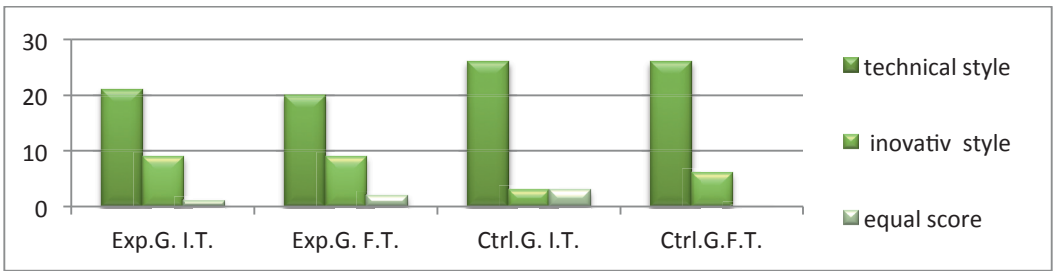

Figure 3 Styles of learning for both groups after initial and final testing

The activities were organised around 5group level: 1 group for the low level, 3 groups for the moderate level, and one group for higher level of intelligences (linguistic, logical-mathematical). Activities work sheet papers were colour coordinated according to the level group and also exercises and problems were graded according to the group and student level (pink – low level, yellow - moderate level, green - high level). Each group represented a different club for Romanian language and literature: Poets Club – low level group, Researchers Club – moderate level, Inventors club – high level. Activities were of various types such as teaching-learning lessons or project presentation and evaluation as it was for English language where each group had to present the homework related to the topic "Inventions." Working activities based on intelligences level at Mathematics allowed students from the low level group after they completed their tasks doing exercises and solving problems from the next level. The

character of these activities also aimed to solve various differences in the understanding of the subject and improvement in calculation and problem solving techniques and strategies. Some of the results which emerged from the evaluation during these activities became marks for the students' current activity. The results of the overall activity at these subjects for both groups are presented in Table 4 and Figure 4.

Table 4 Study subjects and general results for each group from the 5th to the 6th grade

Groups	Romanian language and literature(RO)	English language(EL)	Mathematics(M)	General mean for all subjects/group/grade (GM)
Experimental Group (5th grade)	9,09	9,00	8,34	9,34
Control Group (5th grade)	9,33	8,37	8,29	9,29
Experimental group (6th grade)	9,30	8,70	8,03	9,25
Control Group (6th grade)	8,29	9,39	7,76	9,20

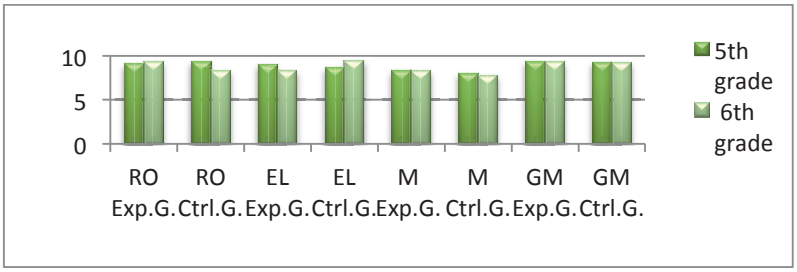

Figure 4 Comparative results for the two groups from grade 5th to grade 6th

Other activities related to the aims of the theory application were conducted as follow: current observations that took place during activities and classes, interviews with students, parents administered questionnaires, attending parent meetings, record levels and categories of extracurricular activity study cases. The development and progress of students was followed and analysed at the end of secondary school (8th grade) when they applied for entry to study at various high schools and the situation was compared against the generated profiles and the data provided during the activities over the entire period from the 5th to the 8th grade. General statistical results are presented in Table 5 and Table 6 for both groups for the 5th and the 6th grades.

Table 5 Statistical data for the experimental group

Experimental Group	Mean initial/final	Median initial/final	Module initial/final	Std.dev. initial/final	Range initial/final	min initial/final	Max initial/final	Coefficient of variance initial/final
Linguistic	48,07/62,25	47/60	47/60	12,77/14,32	57/51	28/38	85/89	26,56%/23,00%
Logical-Mathem.	52,06/63,87	53/63	53/65	13,41/15,07	57,5/58	17,5/35	75/93	25,75%/23,59%
Romanian lang. &lit.	9,09/9,30	9,25/9,50	9/9	0,85/0,55	3/1,5	7/8,5	10/10	9,35%/5,91%
English language	9/8,70	9,25/9	10/9	1,02/1,07	3/4	7/6	10/10	11,33%/12,29%
Mathematics	8,34/8,03	8,75/8,50	9/9	1,35/1,59	5/5	5/5	10/10	16,18%/19,80%
General mean/ group/grade	9,34/9,25	9,46/9,37	10/9,37	0,55/0,58	1,75/2	8,25/8	10/10	5,88%/16,27%

Table 6 Statistical data for the control group

Control Group initial/final	Mean initial/final	Median initial/final	Module initial/final	Std.dev. initial/final	Range initial/final	min initial/final	Max initial/final	Coefficient of variance initial/final
Linguistic	46,18/53,53	46/53	36.50	15,76/16,52	73/68	17/20	90/88	34,12%/30,86%
Logical-Mathematical	52,93/58,18	55/58,50	63/68	15,47/16,11	65/72	13/23	78/95	29,22%/27,68%
Romanian lang. &lit.	9,33/8,29	10/8,50	10/9,50	0,97/1,39	4/5	6/5	10/10	10,39%/16,76%
English language	8,37/9,39	9/10	10/10	1,67/0,99	5/3	5/7	10/10	19,95%/10,54%
Mathematics	8,29/7,73	8,50/8	10/8	1,47/1,67	5/5	5/5	10/10	17,73%/21,60%
General mean/group/grade	9,29/9,20	9,42/9,44	9,67/9,93	0,70/0,78	2,79/2,85	7,21/7,15	10/10	7,53%/8,47%

4. Relevance and future practice

Applying the multiple intelligences theory to students in the 6th grade confirms: the presence of the types of intelligences as specified by the multiple intelligences theory; the existence of different levels of intelligences and types of constructs; the possibility to refer the profile generated to past and current educational results and achievements; it makes designing individualised and personalised instruction level possible in terms of type and level of intelligences, or of several types and levels; designing training in terms of concepts that are needed to ameliorate, improve, accelerate training, instruction, learning; designing training from interdisciplinary, multidisciplinary and trans-disciplinary perspective; it offers the possibility to open a portfolio reflecting the student's progress during school activities; it is a foundation of educational and vocational guidance, based on psychometric instruments rather than empiric practices; it uses the potential in designing the school's educational policy and its ratio according to the national curriculum; used for counselling parents and local community relations. The application revealed that students in their last year of curriculum development cycle within the current educational and instructional activities and a variety of extracurricular activities they carry out, are becoming aware of their potential and are making the first attempts to report and relate these to a purpose. In the present situation it was the concern regarding the relevant high school representative in terms of the individual potential, educational performances and results. Although students were concerned with learning generally it has been observed that the focus of the effort and motivation for learning two disciplines that correspond to their future goals and are in accordance with their potential. It can be summarised that students were in the situation where they started the search to overcome situations such as confusion of purpose and began to become aware of their abilities and their reporting it to a proper purpose. This becomes more evident when analysing the educational and school results situation in the 7th and 8th grades and the situation of admission to high school. Thus the application of multiple intelligences theory is established as an effective tool for improving motivation and academic achievement of the students' individual potential in an appropriate way that makes sense to them and their future career. Educational potential offered by the application of the theory coincides with the efforts at all educational levels to address all types of individual subjects, groups, communities of learners and situations in a relevant and meaningful way for both society and professional domains.

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